PE PATTON
Electronics Co.

M ODEM S HARING D EVICE

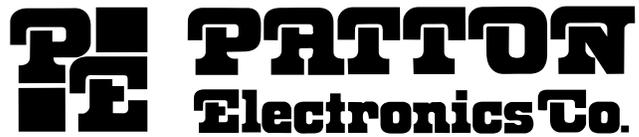# 3012/V24 (CTS MSD-2C)
3014/V24 (CTS MSD-4C)
3018/V24 (CTS MSD-8C)

I NSTALLATION AND O PERATIONS M ANUAL

January 3, 2000

ISO 9001 CERTIFIED

An ISO-9001
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CHAPTER 1 - OPERATON

The Patton MSDs are network enhancement accessories intended for DCE sharing applications. The Patton MSDs allows up to eight terminals or DTE devices to share a single point to point or multi-drop polled communication link.

The Patton MSDs allow for immediate expansion of a system without the requirement of additional Modems or communication lines. All MSDs are protocol transparent and operate in synchronous or asynchronous environments at rates up to 38.4Kbps. Clocking is provided by the attached DCE device on the Master Port. The Patton MSDs have Anti-Streaming capabilities that include selectable time-outs depending on your system transmission speed, and a setting to disable anti-streaming for large data block transfers. No special cables or adapters are required for normal DTE-DCE operation. All interconnects are made via industry standard female DB-25 connectors located on the rear panel of the units. A linear 110/220V, UL, CSA and TÜV approved power supply is internal to the unit.
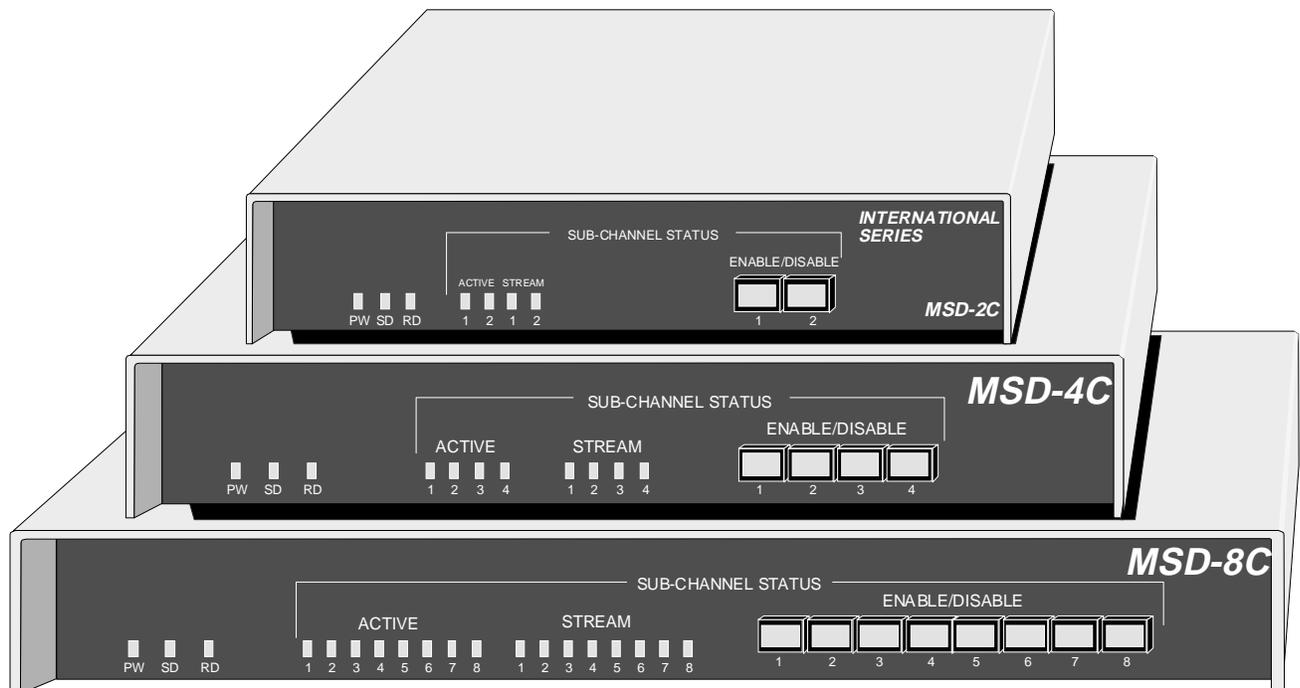
Channel Selection Modes (4 and 8 port only)

The Patton MSD provides two selectable sub-channel service modes of operation: Scanning Mode and Priority Mode. Depending on system requirements, either mode may be selected by internal DIP switch settings. Both modes switch on activity from the sub-channel. Activity is defined as raising RTS on a sub-channel.

In the Scanning Mode the Patton MSD scans each sub-channel in sequence, beginning with channel 1. This rotational sequence is repeated continually with each attached sub-channel having equal access to the communications link. When RTS from a sub-channel becomes active, that sub-channel is given a CTS signal and switched through to the master port by the MSD. All remaining sub-channels are locked out until the first device becomes inactive. When the sub-channel device becomes inactive, the MSD will resume scanning the sub-channels for another active signal.

When configured for Priority Mode operation, the Patton MSD monitors all sub-channels simultaneously with sub-channel 1 having the highest priority. When a sub-channel becomes inactive, the MSD will automatically default to the highest priority (lowest number) sub-channel with activity.

Port Enable/Disable front panel switches must be pushed in (**GREEN** indication) for a sub-channel to access the main channel, regardless of the mode of operation selected.

Anti-Streaming

A typical problem often encountered in DDS and leased-line, polled environments is a "Streaming" remote terminal. The streaming problem can tie up an entire circuit until the offending terminal has recovered or is powered down. A streaming condition occurs when a sub-channel remains active, disrupting the polling sequence. The MSD provides two user selectable modes of controlling a streaming condition: an automatic Anti-Streaming Abort Timer, and a manual Operator Control mode (front panel push button switch).

The streaming condition caused by one of the attached terminals can be quickly bypassed by the Patton MSD via the associated front panel locking switches. A switch is provided for each sub-channel and permits the rapid removal of a streaming terminal without having to disconnect any cables or power down the offending terminal. Terminals may be selectively removed for self-test and maintenance without affecting the remaining sub-channels. Once the streaming condition has been corrected, the front panel switch is simply depressed to the locked (Enable) position (Green indicator **ON**) to re-establish normal operation.

Front Panel Indicators and Switches

The front panel LED indicators associated with each sub-channel identify the active port. A green POWER ON LED indicates when AC voltage is applied. Two adjacent green LED indicators illuminate in union with individual port activity and identify Transmit Data (TXD) and Receive Data (RXD) activity.

Positive latching type switches are provided for each DTE port. These switches allow you to isolate or remove a streaming terminal. The switch is **GREEN** when the channel is active. To disable a sub-channel, push in the switch and it will click to the out position, and turn **BLACK**.

Caution, Disconnect the POWER Before Removing The Cover.
Vorsicht, Befor Deckung Abnehmen Mach Strom Zu.

CHAPTER 2 - SETUP AND INSTALLATION

Power Connection

Before connecting the MSD to an AC power source the top cover must be installed and secured with the supplied screws. The unit is supplied with a 110/220V voltage switch. Turn the switch with a coin or screw driver to the appropriate voltage for your country. EXAMPLE: United States of America, set to 110V. The unit is supplied with an IEC power connector next to the voltage select switch. Plug the power cord into the connector until it is firmly seated. You may now connect the power cord into your AC outlet.
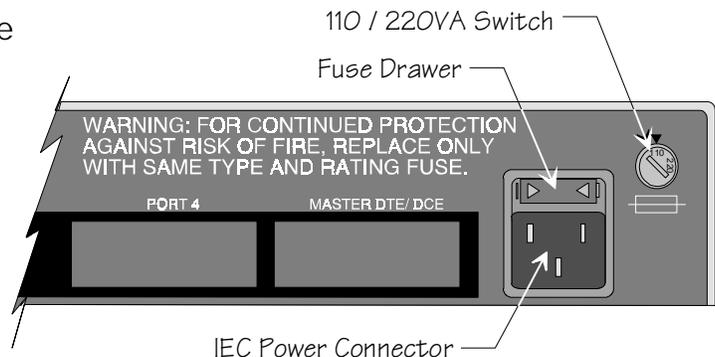
Factory Configuration Switch Settings

The MSDs are configured prior to shipment with the switches set to the following default positions:

3012/V24 (CTS MSD-2C)

Switch 3 - positions 4, 5 and 6 to **OFF,** 1, 2 and 3 to **ON**
Anti-Stream = 40sec. and Disabled
CTS Delay = No Delay
Signal Ground not connected to Chassis Ground

JP4 and JP5 to **IN**
Provide Pin 9 and 10 Test Voltage

JP1, JP2, and JP3 to **IN**
Factory Testing Straps Must be installed

3014/V24 (CTS MSD-4C)

Switch 5 - positions 4 and 6 to **OFF**, 1, 2, 3 and 5 to **ON**
Anti-Stream = 40sec. and Disabled
Switching Mode = Priority
Signal Ground not connected to Chassis Ground

JP4 and JP5 to **IN**
Provided Pin 9 and 10 Test Voltage

JP6 to **OUT**
CTS delay = No Delay

JP1, JP2 and JP3 to **IN**
Factory Test Jumpers must be installed

3018/V24 (CTS MSD-8C)

Switch 9 - positions 4 and 6 to **OFF**, 1, 2, 3 and 5 to **ON**
Anti-Stream = 40sec. and Disabled
Switching Mode = Priority
Signal Ground not connected to Chassis Ground

JP4 and JP5 to **IN**
Provided Pin 9 and 10 Test Voltage

JP6 to **OUT**
CTS delay = No Delay

JP1, JP2 and JP3 to **IN**
Factory Test Jumpers must be installed

If the system application requires one or more of the default settings to be changed, it will be necessary to remove the top cover of the enclosure to access and change the DIP switches located on the printed circuit board.

Disassembly

Remove the top cover by unscrewing the phillips head screws located on the left and right sides of the unit. The configuration switches and jumpers are located on the PCB as indicated on the appropriate strapping guide in the Appendix of this manual. After the switch selection activity is completed, *REINSTALL THE TOP COVER BEFORE CONNECTING TO AN AC POWER SOURCE.*

Installation

Select an appropriate location accessible to and within six feet of an AC power outlet. The outlet must have a ground pin receptacle for product warranty. The DCE-to-DTE cabling between each attached device and the MSD should be "Straight Through", shielded and terminated with male DB-25 connectors. Sub-Channels are marked "PORT 1" through "PORT 8"; the Master Port is marked "MASTER". If any terminal has a priority service mode, ensure it is connected to the port connector designated "PORT 1" on the rear panel of the MSD. Secure other terminals to be serviced to the remaining PORT connectors. Connect the MODEM to the connector designated "MASTER".

Equipment Grounding (Switch Pos 6)

Position 6 on the DIP switch provides for grounding interconnection in those systems requiring a connection between (Frame Ground) and (Signal Ground). Connect ONLY if required.

Anti-Streaming (Switch Pos 1,2,3,4)

The maximum data block size is user selectable via the internal DIP switch positions 1, 2, and 3. As shown below eight block sizes are provided to the user. To disable anti-streaming set position 4 to **OFF**. The maximum block size is normally defined at the time of installation. The MSD will isolate the affected sub-channel until the streaming condition has been corrected, then automatically re-establish communications as before.

3	2	1	Time
OFF	OFF	OFF	.02 sec
OFF	OFF	ON	.04 sec
OFF	ON	OFF	.08 sec
OFF	ON	ON	.30 sec
ON	OFF	OFF	1.3 sec
ON	OFF	ON	5.0 sec
ON	ON	OFF	20.0 sec
ON	ON	ON	40.0 sec

Switching Mode Selection (Switch Pos 5) *3014/V24 (CTS MSD-4C) & 3018/ V24 (CTS MSD-8C) Only*

To select Priority Mode, set switch position 5 to **ON**. To select Scanning Mode, set switch position 5 to **OFF**. The Modem connected to the master port of the MSD must toggle CTS in response to RTS for the MSD to operate correctly. In addition, the terminals connected to the ports must toggle RTS to gain control of the unit. If the terminal will not toggle RTS, it will not work with an MSD.

CTS Delay on the 3012/V24 (CTS MDS-2C) (Switch Pos 5)

If a 25 mS CTS delay is desired, set switch position 5 to **ON**. If no delay is required set switch position 5 to **OFF**.

CTS Delay on the 3014/V24 (CTS MSD-4C) & 3018/V24 (CTS MSD-8C) (JP6)

If a 25 mS CTS delay is desired, install the CTS Delay Jumper.

Unregulated Power to Pins 9 & 10

Jumpers JP4 and JP5 must be installed to provide unregulated power on pins 9 & 10 on the port DB-25 connectors.

Factory Test Jumpers (JP1,JP2,JP3)

The three test jumpers JP1, 2 and 3, must be installed for the unit to properly function. These jumpers are used in the manufacture and test of the product prior to shipment.

APPENDIX

TECHNICAL SPECIFICATIONS

Applications

Multiple Sync/Async devices operating in a polled environment, sharing one RS-232 DCE interface

Capacity

One to Eight RS-232 Synch/Async Terminals; Standard DB-25 V.24 (female) connectors for each channel

Data Format

Data transparent at all data rates

Data Rates

Up to 38.4Kbps

Timing

External: …. From Modem or TX Clock provided on Channel 1 (pin 24)

Anti-streaming

Automatic: Selectable timeout intervals or disable

Terminal Service Modes (4 & 8 Port Only)

Scanning Mode: ….. Channels are continuously scanned for "RTS" on a sequential basis.
Priority Mode: ……. Channels are simultaneously monitored for "RTS" channel one has highest access.

Sub-Channel Interface

EIA RS-232, V.24 female connectors (DB-25)

Modem Interface

EIA RS-232, V.24 female connector (DB-25)

Front Panel

Indicators: … Power, Send/Receive Data, Channel Active, Channel Stream
Switches: …. Enable/Disable each Sub-Channel

Power Source

100-120/200-240VAC, 50 to 60Hz, 0.16/0.08A, Switch Selectable

Environmental

Operating Temp: ….. 32° to 122°F (0° to 50°C)
Relative Humidity: … 5 to 90% non-condensing
Altitude: …………… 0 to 10,000 feet

Dimensions

(MSD-2C)
Height: ……… 1.75 inches (4.44 cm)
Width: ……… 8.90 inches (22.60 cm)
Length: ……… 10.00 inches (25.40 cm)
(MSD-4C)
Height: ……… 2.05 inches (5.21 cm)
Width: ……… 13.35 inches (33.09 cm)
Length: ……… 9.00 inches (22.86 cm)
(MSD-8C)
Height: ……… 1.75 inches (4.44 cm)
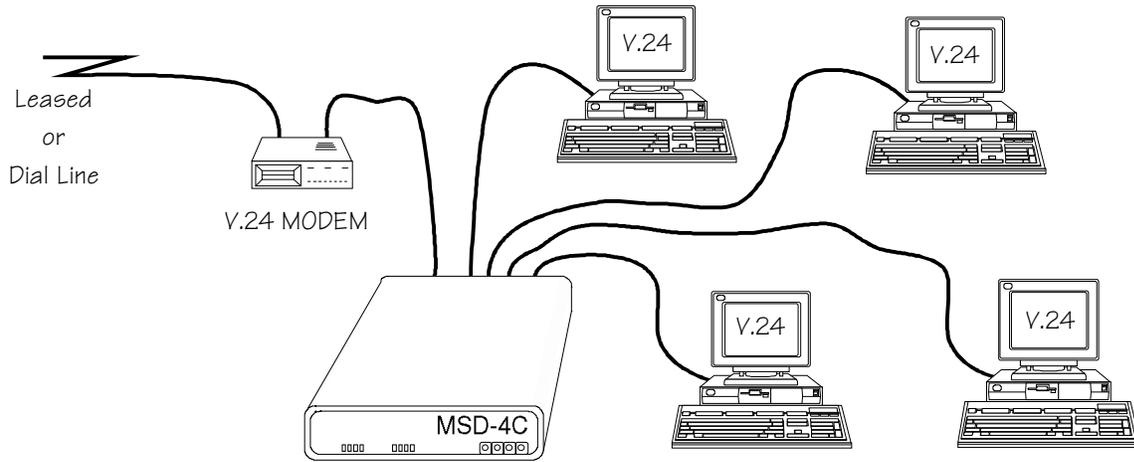Width: ……… 17.00 inches (43.18 cm)
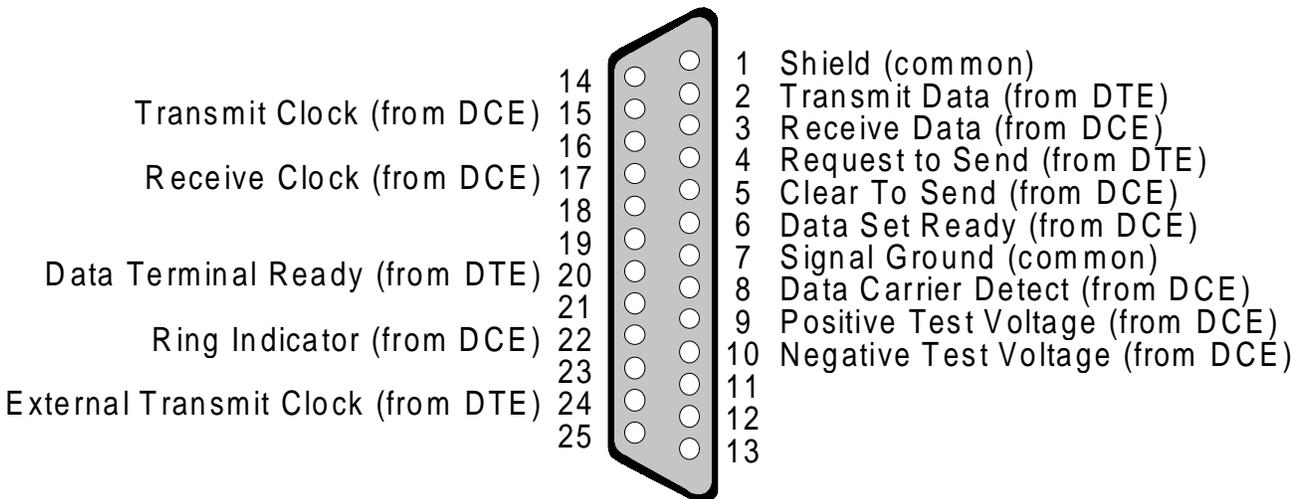Length: ……… 11.00 inches (18.93 cm)

Weight

2.2 lbs (1.0 Kg) 3012/V24 (CTS MSD-2C)
4.5 lbs (2.1 Kg) 3014/V24 (CTS MSD-4C)
4.5 lbs (2.1 Kg) 3018/V24 (CTS MSD-8C)

Typical Application

RS-232 Pin Out

Pin	Signal
14	
Transmit Clock (from DCE) 15	
16	
Receive Clock (from DCE) 17	
18	
19	
Data Terminal Ready (from DTE) 20	
21	
Ring Indicator (from DCE) 22	
23	
External Transmit Clock (from DTE) 24	
25	

Pin	Signal
1	Shield (common)
2	Transmit Data (from DTE)
3	Receive Data (from DCE)
4	Request to Send (from DTE)
5	Clear To Send (from DCE)
6	Data Set Ready (from DCE)
7	Signal Ground (common)
8	Data Carrier Detect (from DCE)
9	Positive Test Voltage (from DCE)
10	Negative Test Voltage (from DCE)
11	
12	
13	

SW3

Anti-Stream Timer
Anti-Stream Enable=ON/Disable=OFF
CTS Delay 25mS=ON/No Delay=OFF
Signal to Chassis Ground

OFF   ON

+5V JP1

+8V JP2

-8V JP3

Negative
Test
Voltage JP4

Positive
Test
Voltage JP5

3012/V24

(CTS MSD-2C)

Positive
Test
Voltage JP5

Negative
Test
Voltage JP4

CTS Delay
25mS Installed JP6
No Delay Removed

SW5

Anti-Stream Timer

-8V JP3

Anti-Stream Enable=ON/Disable=OFF
Priority Mode=ON/Scan Mode=OFF
Signal to Chassis Ground

+8V JP2

OFF   ON

3014/V24

+5V JP1

(CTS MSD-4C)

Negative Test Voltage   JP4 JP5   Positive Test Voltage

CTS Delay
25mS Installed
No Delay Removed   JP6

SW9

-8V JP3

Anti-Stream Timer

Anti-Stream Enable=ON/Disable=OFF
Priority Mode=ON/Scan Mode=OFF
Signal to Chassis Ground
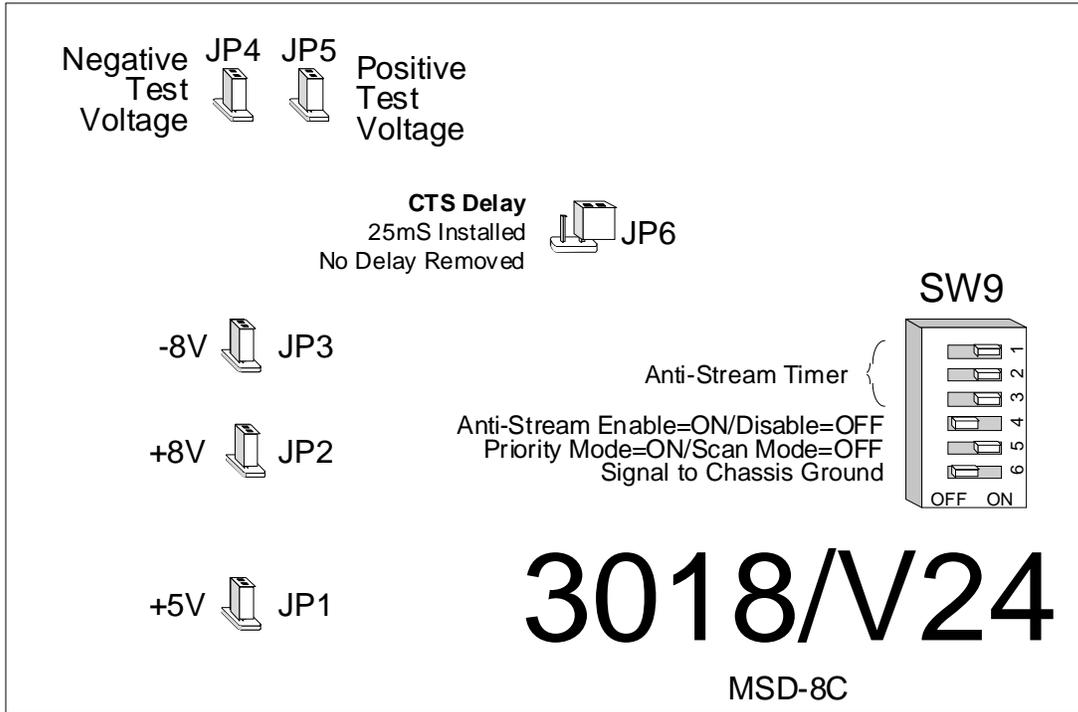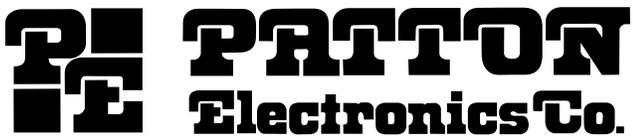
+8V JP2

OFF   ON

+5V JP1

3018/V24

MSD-8C

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